Remote Control & Automatic Pressure Optimization

MUELLER

Technical Guide W4.77

05.25 | W4.77 REMOTE CONTROL & AUTOMATIC PRESSURE OPTIMIZATION

We are the supply partner of choice for New Zealand's civil construction industry, specialising in water and infrastructure based solutions.

HYNDSwater

MUELLER ADVANCED PRESSURE MANAGEMENT SOLUTION ENABLES REMOTE CONTROL AND AUTOMATIC OPTIMIZATION OF PRESSURE AT PRVs AND PUMPS ACROSS YOUR ENTIRE NETWORK

REMOTE CONTROL:

- You decide and set your control philosophy for PRVs and pumps
- Fixed outlet pressure precisely controlled with minimum factor of safety
- Schedule in advance for known variations: events, intermittent supply
- Implement a control curve that you have manually calculated

AUTOMATIC OPTIMIZATION:

- Mueller Advanced Pressure Management algorithms determine the optimal control philosophy for PRVs and pumps to achieve a minimum control point pressure
- Adjust for flow-related head loss
- Adapts to changes in demand over time: fire demand, seasonal, cultural and growth-related changes

MUELLER CLIENTS USE ADVANCED PRESSURE MANAGEMENT TO ACHIEVE A WIDE RANGE OF BUSINESS BENEFITS

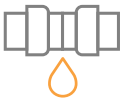
Remote control and automatic optimization of pressure calms the network and delivers a wide range of business benefits.

ADDITIONAL MUELLER ADVANCED PRESSURE MANAGEMENT SOLUTION BENEFITS INCLUDE:

- Asset life increase
- Operating cost reduction
- Improved customer service
- Drought risk mitigation

ENERGY COST REDUCTION

Anglian Water scheduled a pilot site to demonstrate the potential of pump control and optimization due to its burst history and leakage levels. The DMA has 23 mi of predominately cast iron pipe and serves a population of 6,245 including a hospital which is classed as a critical user. 2 variable speed drive pumps were fitted to enable control and optimization and this cost was included in the calculation of the ROI. The distribution booster station outlet pressure was steadily reduced over a number of weeks to allow the Mueller algorithm to learn the relationship between the flow and pressures, and to ensure minimal impact upon customers.



16% REDUCTION IN LEAKAGE
65% REDUCTION IN BURST FREQUENCY

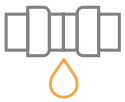
MITIGATED NEED FOR ACTIVE LEAKAGE CONTROL ACTIVITIES, LEADING TO REDUCED OPERATING COST

26% REDUCTION IN AVERAGE PRESSURES

7 MONTH ROI - 49% ENERGY SAVING

LEAKAGE AND NON-REVENUE WATER REDUCTION

Guangdong Water in Southern China was facing high levels of Non-Revenue Water (NRW) and needed to find a way of quickly and effectively reducing leakage. Mueller Advanced Pressure Management was first used in Changping, an industrial area with high levels of leakage and NRW. The solution ensured they could continuously reduce excess pressure in the network and therefore significantly reduce leakage while still delivering the network demands in a heavily industrialized area.



18% REDUCTION IN LEAKAGE
8% REDUCTION IN NRW

SCHEDULING FOR PREDICTABLE VARIANCES

The state of Selangor in Malaysia experienced severe water shortage and was forced to embark on a water rationing program across hundreds of DMAs. Mueller Advanced Pressure Management was used to ensure that supply could be cut and restored reliably at fixed times and on specific days. At a difficult time the utility was able to make and keep commitments to customers without having to dispatch large numbers of staff to site and do battle with Kuala Lumpur's infamous traffic jams.

MINIMIZATION OF THE NUMBER OF CUSTOMER COMPLAINTS

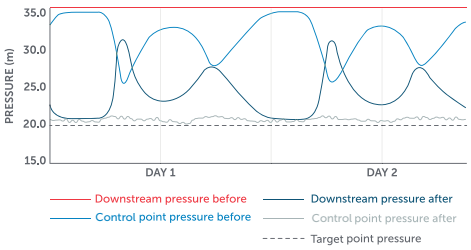
REMOTELY CONTROL AND AUTOMATICALLY OPTIMIZE PRESSURE IN YOUR ENTIRE NETWORK

HOW IT WORKS

DEPLOY AND CONFIGURE	DATA GATHERING	SELECT AND SET CONTROL PHILOSOPHY	CONTROL PRVS AND PUMPS
• Install hardware • Configure devices	• Flow • Downstream pressure • Upstream pressure (PRV only) • Control space pressure (PRV only) • Control point pressure	• Set target pressure • Set timings • Implement your own control curve or use Mueller automatic optimization • Set alarms	• Configure control modes and advanced scheduling options

AUTOMATIC OPTIMIZATION

Mueller's patented algorithm takes pressure and flow data and automatically determines the optimal control curve that should be applied. Any changes in supply, demand, head loss, etc. over time are incorporated automatically into an updated control curve without the need for any manual analysis or intervention.



HARDWARE

PRV MONITORING AND CONTROL

Mueller's APV is fitted on a secondary pilot rail. A pressure logger monitors upstream, downstream and control space pressure and flow, and acts as the controller for the APV.

CONTROL POINT MONITORING

Mueller's Logger monitors pressure at the control point.

WHY MUELLER?

Mueller offers a high level of quality at the lowest lifetime cost. It supports clients fully in their use of our solutions. Mueller invests heavily in R&D, working with clients to improve existing solutions and bring new solutions to market. Key advantages of Mueller Advanced Pressure Management:

ACCURATE AND SMOOTH CONTROL	CONTROL MODES	ADVANCED SCHEDULING OPTIONS	SUITE OF SOLUTIONS
• Mueller is the only company using a dedicated pilot valve designed to continuously adjust pressure rather than actuating a pilot valve designed for occasional manual adjustment • Mueller uses open loop control which ensures that 'hunting' behavior exhibited by closed loop systems is avoided, and that communication failures do not affect operations • Rate and gradation of pressure changes can all be programed in advance • Mueller patented protected technology	• Fixed downstream pressure • Flow modulation using water company-defined outlet pressure table • Automatic optimization using outlet pressure table created by system algorithm	• Scheduling function for each and all control modes • Ability to mix modes at different times • And more...	• The Mueller pressure management solution complements the entire lineup of intelligent water network solutions, including pressure monitoring solutions, leak detection solutions, and meter solutions

Mueller Solutions are available as SaaS, some in enterprise editions. Clients repeatedly choose SaaS for three main reasons:

THE FASTEST WAY TO DELIVER

- Works anywhere
- Easy to use
- Immediately available

NO HASSLE

- Guaranteed levels of service
- Seamless upgrades
- Zero infrastructure
- High levels of security

AFFORDABLE

- No significant up-front costs
- Simple annual fee
- Scalable